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EVALUATION OF THE SOUTHERN PINE BEETLE INFESTATION ON THE HOMOCHITTO NATIONAL FOREST, MISSISSIPPI

by

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INTRODUCTION

Aerial sketch map surveys with subsequent ground examinations were conducted by the Forest Insect and Disease Management Group on the Bude and Homochitto Ranger Districts, Homochitto National Forest (373,497 acres) during early July 1975. The purpose of the surveys was to determine the current status and trend of the southern pine beetle on the Forest.

METHODS

A 50 percent aerial sketch map survey [2/] was performed in evaluating the southern pine beetle population.

A portion of the spots detected during the aerial phase of the evaluation was examined on the ground to confirm the cause of mortality and the percentage of active spots.

TECHNICAL INFORMATION

Insect - Southern pine beetle, (Dendroctonus frontalis, Zimm.).

Hosts - All species of southern yellow pine.

Preferred Hosts - Loblolly pine (Pinus taeda, L.) and shortleaf pine (P. echinata, Mill.).

Type of Damage - Death of the tree is the result of cambial mining by the southern pine beetle as they construct their galleries. The beetle also introduces the blue stain fung, Ceratocystis spp., which slows down or blocks conduction of water in the stem.

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2/ Detection of forest pests in the Southeast, 1970. USDA, USFS, SA, S&PF, Div. of FPM, Publ. S&PF 7, Atlanta, Georgia.

Life Cycle of the Beetle - The beetles attack in pairs and construct a winding gallery in the cambium. Eggs are deposited in niches along the sides of the galleries. The eggs hatch into whitish grubs that further mine the cambium and then construct cells in the bark for pupation. The callow adults then mine through the bark to emerge. The complete life cycle takes about a month during the summer, and as many as seven generations may be produced in a year.

RESULTS AND DISCUSSION

Southern pine beetle populations and tree mortality have continued to decline on the Forest from July 1970 to May 1974 (Ragenovich, 1974). Data collected in early July 1975 (Tables 1 and 2) indicate little change in beetle populations since May and November 1974.

In the November 1974 report it was recommended that consideration be given to termination of the project if populations remained at a low level during the next survey. Since populations have continued to remain low this year, it is recommended that suppression projects on the Homochitto National Forest be terminated. Should southern pine beetle populations again reach outbreak proportions on the Homochitto National Forest, a new biological evaluation should be requested.

REFERENCES

Aldrich, R.D., R.C. Heller, and W.F. Bailey. 1958. Observation limits for aerial sketchmapping southern pine beetle damage in the southern Appalachians. J. For. 56(3):201-3.

Ragenovich, I.R. 1974. Evaluation of southern pine beetle infestations on the Homochitto National Forest, Mississippi. USDA, USFS, SA, S&PF, Div. of FPM Group, Pineville, Louisiana, Report No. 75-2-7.

Terry, J.R., J.F. Denniston, and I.R. Ragenovich. 1974. Evaluation of southern pine beetle infestations on the Homochitto National Forest, Mississippi. USDA, USFS, SA, S&PF, FPM Group, Pineville, Louisiana, Report No. 74-2-9.

Table 1. Summary of aerial survey data - southern pine beetle evaluation, National Forests in Mississippi, July 1975

Ownership (District)	Spot Size (Trees)[1/]						
	Singles	2-5 Spots-Trees	6-20 Spots-Trees	21-50 Spots-Trees	50+ Spots-Trees	Total Spots-Trees	Avg. Multiple Tree-Spot Size
Bude	142	13-46	14-101	0	0	169-289	5.4
Homochitto	107	46-142.6	14-114.8	0	0	167-364	4.29
TOTAL ALL DISTRICTS	249	59-188.6	28-215.8			336-653	9.69

[1/] Data corrected and expanded to 100 percent survey area coverage according to Aldrich et al., 1958.

Table 2. Summary of the results of southern pine beetle evaluations conducted on the Homochitto and Bude Ranger Districts, National Forests in Mississippi. July 1975

	Ownership Unit (National Forests)[1/]		
	Bude	Homochitto	Total
1. Results compiled from data collected during the aerial phase of the evaluation			
Survey type		50 Percent Sketch Map	
Date of Survey	July 1, 1975	July 2, 1975	
Total acreage surveyed	188,407	185,090	373,497
Total susceptible host type acreage	126,232	124,010	250,242
Total number of spots within survey boundary	169	167	336
Spots per M acres host type	1.35	1.34	1.34
Average spot size (trees)	1.71	2.18	1.95
Range of spot size (trees)	1-10	1-10	1-10
Reds and faders per M acres host type	2.30	2.94	2.60
2. Results compiled from data collected during ground and aerial phase of the evaluation			
Date of ground phase	July 9, 1975	July 2, 1975	
Total number of infested trees	161	137	298
Infested trees per M acres host type	1.28	1.10	1.2
Green infested to red infested tree ratio	1.2:1	1:5.0	1.1:3
Total volume of infested trees (bd. ft.)	8,501	10,304	18,805
Total volume of infested trees (cu. ft.)	148	73	221

[1/] Corrected and expanded data.